

ATTACHMENT E

FOCUS GROUPS – GENERATION EARTH

Generation Earth Service Learning Program



2013 Evaluation Report

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Introduction

This report addresses the workings and effectiveness of the Generation Earth Service Learning Program through the eyes of teachers and students. Our agreement with the Los Angeles County Department of Public Works and Generation Earth administrators called for a detailed online survey of program teachers, student and teacher focus groups, and a brief online student survey to support the focus groups. Los Angeles County and Generation Earth Service Learning staff participated in the designs of the surveys and focus group guides. Forty-one teachers representing more than 100 program classrooms completed the online survey. Six middle and high school student focus groups and one teacher focus group participated. We administered the surveys and conducted the focus groups.

This report continues a periodic assessment of Generation Earth Service Learning education programs beginning in the late 1990s. This report is the seventh annual report dating from 2006. Replicating some of what we have done in recent assessments, this inquiry focuses on the views of Generation Earth Service Learning teachers about what they and their students learn, and on the effectiveness of key components of the Generation Earth Service Learning program. The inclusion of six student focus groups and one teacher focus group this year is new. We did not replicate the in-class student surveys we have used in the past.

Our Longitudinal Evaluation Frame

Our report for 2013 now takes advantage of seven years of data reflecting the effects and workings of the Generation Earth Service Learning program. We again stress *longitudinal processes and developments* in addition to the most recent one-year change measures.

Documenting developments and outcomes in the Generation Earth Service Learning program over time is important because the program staff and sponsors are interested in the sustained effects of the program on students and teachers, and on school communities more generally. Our evaluation also assesses the responsiveness of the Generation Earth Service Learning program to suggestions from previous program evaluations.

Environmental issues are prominent topics in regional, national, and world communities, as concerns have increased about climate change, use and disposal of resources, the rising costs of energy, increasing shortages of potable water, and risks commonly associated with fossil fuel use. Recent events in Japan and the Gulf of Mexico keep environmental concerns salient in the public's mind; the importance of these issues will only escalate in the future, in many expert opinions.

This 2013 report continues a feature that should assist and inform readers. This is the inclusion of displays of teacher comments from our survey within the report narrative, while some are lengthy we feel are important to include here. This brings teacher voices directly to bear on the issues also described in our numerical data. We also produced these displays after completing a basic content analysis of the teacher statements. This allows presenting them in a categorized fashion.

Generation Earth Service Learning Program Description

This instructional program has maintained a consistent mission over the years, with some evolution in the topics featured in the curriculum and the materials, and procedure outlines furnished to participating teachers. This middle school and high school program is an environmental education program of the Los Angeles County Department of Public Works. The primary goal of this program is to educate and empower secondary school students in Los Angeles County to be an active part of solutions to environmental concerns in their communities. Teens can be powerful agents of change in their families and among their friends. Generation Earth believes that the experience of taking action for positive change will inspire teens to take responsibility for their lives and, in turn, their communities. The Generation Earth Service Learning program is the focus of this study.

Service learning is a teaching and learning model available through the Generation Earth Program to all Los Angeles County educators in public and private secondary schools. Participating classrooms integrate community service with academic study to enrich learning, teach civic responsibility, and strengthen communities. There is an ample research base that supports the positive contributions of service approaches to learning.

Service Learning is an important approach for helping youth develop pro-social orientations and publicly beneficial actions in many domains. A National Service Learning Initiative has emanated from the White House and has been taken up by numerous agencies and organizations. The Music National Service Program based in San Francisco is one such program. A recent publication captures the upswing of community interest in service learning: *The Service- Learning Research Primer* (Scotts Valley, CA: Learn and Serve America's National Service-Learning Clearinghouse, © 2010).

When compared to traditional classroom instruction, Service learning instructional designs have been associated with higher scores on state standardized academic tests (Anderson, et al., 1991) and higher academic grades (Shumer, 1994; Shaffer, 1993; Dean and Murdock, 1992; and O'Bannon, 1999). One study showed that students in over half of the high quality service learning schools in its sample showed moderate to strong positive gains on tests in language arts and/or reading, increased engagement in school, sense of educational accomplishment, and homework completion (Weiler, et al., 1998). This same study found that middle and high school students who engaged in quality service learning programs showed increases in measures of personal and social responsibility, communication, and sense of educational competence.

While it has not been demonstrated empirically, the variation in outcomes within these studies is almost certainly related to the degree of engagement students experience in their service learning projects. Thus, questions of implementing service learning programs should be accompanied by questions of what sorts of designs and processes lead to high rates of engagement and action on the part of learners.

Evaluation Methods

Online teacher survey. We asked Generation Earth teachers an extensive array of questions about program implementation and student learning using an online survey instrument. Forty-one teachers completed surveys this year. This was a decrease over 2012 where seventy-four completed the survey, but more in line with previous years.

Focus Groups. Student and teacher focus groups were added to the program evaluation for this year. Six student focus groups and one teacher focus group were conducted. Questions for the focus groups were agreed on with the County and Generation Earth staff and are included in Appendix A and B.

Focus groups have long been used in qualitative research. An early formal focus group routine was used by Robert Merton, a consultant to the military, in efforts to measure the effects of different kinds of government propaganda after World War II (Kambererelis & Dimitriadis, 2013). Focus groups go beyond the group interview and can range from “non-directive” where conversations among the participants are encouraged to “directive” approaches where set questions are provided, or a combination of both.

While we adhered to the agreed upon guiding questions, we also gained insights and information from discussions within the focus groups. We find richness in conversations when one comment prompts another participant to recall or offer more. There are also times when the focus group researcher can dig deeper with follow up questions.

According to David Morgan’s definitive focus group methods text (*Focus Groups as Qualitative Research*, Sage Publications, 1997), focus groups can be used three ways: “First, they are used as a self-contained method in studies in which they serve as the principal source of data. Second, they are used as a supplementary source of data that rely on some other primary method such as a survey. Third, they are used in *multimethod* studies that combine two or more means of gathering data in which no one primary method determines the use of the others.” (P.3.)

Our study reflects the third method, *multimethod*, as an online survey is used along with the teacher and student focus groups.

To analyze focus group data, we rely on standard qualitative practices that are described in “What About Focus Group Interaction Data” (Duggleby, 2006) where interactions are described to interpret the findings and group interaction data is incorporated into the transcripts.

Online student survey. An online survey was created using three key questions from the student focus groups. We were interested in giving each student a chance to respond more completely. Four schools representing 29 middle school and ten high school students responded. Results of this survey are presented in Appendix C at the end of the report.

Setting up the Focus Groups

We contacted several Generation Earth middle and high schools in the spring of 2013 to request meetings with the students either during a class, during lunch, or after school. The actual times allotted varied from under thirty minutes during lunch to fifty-minute class periods. We were able to meet with four groups of high school students from Santa Fe, Hawthorne, Norwalk, Franklin and two groups of middle school students from Rosemont and Franklin Classical. Four of the six groups were school clubs and two were classes. We met with forty-five high school students and eighteen middle school students.

A teacher focus group was held at TreePeople Headquarters and nine middle and high school teachers attended.

At least two researchers attended each focus group, one to pose and shepherd the questions and the other to record the responses. Audio recordings were also collected during the groups for accuracy of comments.

Online Teacher Survey Results

Assessment of Program Implementation

Figure 1 catalogues teacher reports about themselves and their implementation of the Generation Earth Service Learning program in 2013 and in each year since 2008.

Figure 1: 2013 Generation Earth Implementation Profile from Teacher Survey (with prior years)	2008	2009	2010	2011	2012	2013
1. N of responses	17	40	51	25	74	41
2. Modal years of GE experience	2 or 3	2	2	3	2-4	3
3. Percent High School	55.0%	75.0%	51.0%	63.6%	54.2%	36.6%
4. Percent GE taught in science class	56.3%	65.0%	78.0%	83.0%	73.6%	63.4%
5. Most common other class	history	history	history	School club	School Club	School club
6. Percent of teachers using GE in:						
<i>one class</i>	33.3%	22.5%	28.6%	12.0%	23.6%	46.3%
<i>two classes</i>	20.0%	30.0%	14.3%	44.0%	16.7%	29.3%
<i>three classes</i>	20.0%	7.5%	14.3%	24.0%	9.7%	7.3%
<i>four classes</i>	6.7%	15.0%	18.4%	8.0%	12.5%	0.0%
<i>five classes</i>	20.0%	25.0%	24.5%	12.0%	37.5%	17.1%

This year's statistics about Generation Earth Service Learning program implementation are based on responses of 41 teachers to the 2013 Teacher Survey. Teachers involved in the Generation Earth Service Learning program are typically science teachers; this year's teacher survey respondents were predominantly science teachers (63 percent). Most teachers implement the program in one or two of their classes or in all five classes, with others ranging between three and four classes. Teacher survey responses came from more middle school than high school teachers – opposite of previous years.

Workshops and Summer Institute Teacher Training

Figure 2: 2013 Generation Earth Professional Development Profile, from Teacher Survey (with prior years)	2008	2009	2010	2011	2012	2013
7. Training for GE provided through:						
Workshop	68.8%	74.4%	78.0%	75.0%	86.3%	77.5%
Summer Institute	37.5%	38.5%	40.0%	50.0%	38.4%	42.5%
8. Modal hours of training	5-9 hours	5-9 hours	5-9 hours	5-9 hours	5-9 hours	5-9 hours
9. Percent receiving more than mode	18.8%	33.3%	38.0%	25.0%	25.0%	22.0%
10. General rating of training for Generation Earth						
<i>Superior</i>	31.3%	45.0%	40.0%	36.0%	50.0%	36.6%
<i>Above average</i>	62.5%	50.0%	46.0%	48.0%	41.9%	61.0%
<i>Average</i>	6.3%	5.0%	10.0%	16.0%	6.8%	2.4%
<i>Below Average</i>	0.0%	0.0%	4.0%	0.0%	1.4%	0.0%
11. N of comments on Training offered	7	28	31	20	60	26
12. Did you implement GE after training?	86.7%	94.9%	93.8%	92.0%	97.3%	80%

Figure 2 shows that participation in summer institutes has increased to forty-three percent while participation in workshops slightly decreased from eighty-six to seventy-eight percent. The Figure also shows that the most common number of hours (called the mode) of workshop and training time remains the same as in past years -- between five and nine hours. Post-training implementation rates decreased to eighty percent from an average of ninety-two percent over the last five years. Comments from teachers who did not implement the program following training reflect several reasons: changing schools; changing curriculums; not having enough time due to testing; and wanting to wait another year to coordinate with their curriculum.

Grade Levels

Figure 3: Number of GE Classes by Grade	2008	2009	2010	2011	2012	2013
Grade 6	2	8	10	10	17	21
Grade 7	3	9	13	7	18	19
Grade 8	3	7	7	5	15	8
Grade 9	3	14	12	4	19	16
Grade 10	4	8	11	5	18	16
Grade 11	3	14	14	5	22	26
Grade 12	3	12	13	3	24	19

Figure 3 above shows that program classes are fairly balanced between middle (6-8) and high school grades (9-12). With more middle school teachers responding to the survey, this indicates a higher percentage of high school classes using Generation Earth.

As shown in Figure 4 below, Generation Earth Service Learning teachers individually serve a wide range of student numbers, with half serving more than 50 students, and mainly serving between two and five classes.

Figure 4: Number of students served by GE per teacher	2008	2009	2010	2011	2012	2013
Fewer than 30	15.4%	8.3%	11.4%	9.1%	7.1%	21.9%
30-50	7.7%	27.8%	22.7%	31.8%	17.1%	28.1%
51-70	23.1%	11.1%	18.2%	13.6%	17.1%	15.6%
71-100	30.7%	8.3%	13.6%	36.4%	15.7%	3.1%
More than 100	23.1%	44.4%	34.1%	9.1%	42.9%	31.3%

Teacher descriptions of selected implemented program activities

Field trips. Los Angeles is rife with institutions and agencies that have active concerns with and/or significant impacts on the regional environment. In 2013, students visited over 25 different sites and institutions, and numerous beaches for cleanup projects. Program classrooms seem to sample these liberally as part of their curriculum. Field trips continue to be an important part of the curriculum or a capstone for the program. The hands-on “see it for yourself” experience brings to life what is studied in the classroom.

Environmental activities in the schools. Almost 70 percent of the teachers conducted a waste audit and 56 percent the water audit with their students illustrating the continued relevance of the curricular materials. Ninety-six percent of the teachers took their classes on a field trip and 80 percent invited outside speakers to the classroom. This is an important element in service learning and builds ties between the students and their community. Seventy-eight percent of the teachers also indicate “other” as an activity and cite trips to TreePeople, a Disney Conference at the Los Angeles County Arboretum, or composting and gardening as examples of such activities.

Assessment of Program Professional Development

Figure 5: Global teacher ratings of training	2008	2009	2010	2011	2012	2013
Superior	31.3%	45.0%	40.0%	36.0%	50.0%	36.6%
Above Average	62.5%	50.0%	46.0%	48.0%	41.9%	61.0%
Average	6.3%	5.0%	10.0%	16.0%	6.8%	2.4%
Below Average or lower	0.0%	0.0%	4.0%	0.0%	1.4%	0.0%

Figure 5 shows teacher ratings of the training they receive as part of the Generation Earth Service Learning program. These ratings are considerably higher than the ratings they would give to other professional development experiences. Teachers commented that classes were helpful and well organized, and a few teachers felt more refreshers and more training would be good. The percentage of teachers rating training in the *superior* category for 2013 is at 37 percent, consistent with previous years. That combined with 61 percent *above average* is a 98 percent rating of above average to superior. The overall ratings of training remain considerably higher than those we would expect to see in other external programs.

Teacher appraisals of ongoing support from Generation Earth Service Learning

Figure 6: Overall teacher rating of ongoing GESL support	2008	2009	2010	2011	2012	2013
Excellent	38.5%	78.7%	54.5%	61.9%	62.5%	77.4%
Very good	61.5%	19.4%	38.6%	38.1%	31.9%	22.6%
Somewhat inadequate	0.0%	2.8%	6.8%	0.0%	1.4%	0.0%
Poor	0.0%	0.0%	0.0%	0.0%	1.4%	0.0%

As shown in Figure 6, teacher assessments of the value of ongoing professional development workshops and program support, as reported on the annual teacher survey, have been consistently high. The trend beginning in 2008 to 2013 continues to remain high with 100 percent of teachers rated ongoing professional development as *excellent* or *very good*. Follow-up contact shows as one of the hallmarks of the program.

Teacher survey comments on training

Below is a sample of the teachers' comments written on the 2013 teacher survey regarding their support and training. The teachers continue to be very positive about the program staff's teaching methods and support activities, the quality of training personnel, the appeal and effectiveness of the program's ideas, and the quality of the materials. Program staff members are widely regarded as knowledgeable, caring, and persistent educators.

Teacher comments about their support and training (partial list):

- *GE provides a team to walk teachers through a process of discovery on environmental issues including knowledgeable speakers, field studies, and a variety of materials to use back in the classroom. Once back in the classroom, a GE team member provides additional support via E-mail, phone and visits to your school.*
- *The staff is friendly and supportive. Their enthusiasm is infectious. Always quick to respond and help with projects.*
- *Very hands on, well prepared, with materials we could take back and use.*
- *The support and training from Generation Earth is outstanding. The workshops provide a lot of ideas of how to incorporate relevant world topics into course curricula. The staff is very helpful and supportive.*
- *The support/training has been there year after year, unlike other programs that cut you loose after the initial training.*
- *It was an awesome workshop. The material was applicable and relevant.*
- *The original Summer Institute that I did was pivotal in designing my curriculum.*
- *~Informative~Engaging~Inspiring.*

Types of ongoing support utilized in 2013

Teachers reported through our survey on the types of ongoing program support they used during this school year. After a workshop or training session, teachers are matched with an individual staff member from Generation Earth to work with them throughout the year. This helps to personalize their experience and builds working relationships. Teachers report leaning heavily on individual support personnel. They also relied on program staff for assistance in setting up field trips and for program event planning.

Figure 6.2 displays a partial list of teacher responses to Question 31 on the survey describing specific types of support that teachers used in 2012-2013. The diverse and multiple ways that teachers received support is impressive, and a popular component of the Generation Earth Service Learning program experience.

Figure 6.2 Teacher use of ongoing support (partial list).

Question 1	List the types(s) of on-going Generation Earth support you used this past year.
Event Assistance	<p>Help with organizing a tree planting and clean up 2012.</p> <p>Support, advice, and contact information.</p> <p>Project Manager provided resources, workshop, ideas, encouragement, and willingness to assist and further our programs.</p> <p>Generation Earth and TreePeople are absolutely fabulous. They get right back to you when you email them with a request and they work on your issue until they find a solution. I love them!</p>
GE Personnel	<p>Implementing ideas.</p> <p>Speakers for the Classroom.</p> <p>Grant opportunities.</p> <p>Loyda Ramos was always there to assist me in anything that I needed. Julie Anne was a great help by delivering great Professional Development.</p>
GE Personnel, GE Resources	<p>GE members have served as judges at our science fair.</p> <p>Fieldtrips, Lesson ideas.</p> <p>Support for a booth at tree giveaway.</p> <p>Service learning project ideas.</p> <p>I find the support to my curriculum to be invaluable. It is great to have the ability to access activities that are authentic and can be used in various settings.</p>

Teacher comments reflect support in planning events and activities. The staff supported teachers with visits to the schools to help judge science fairs, give talks, and meetings to plan projects for the school year.

Teacher Learning Through the Program

In addition to reporting on their students' learning, teachers had an opportunity in five successive surveys to report on the things they learned through their participation in Generation Earth Service Learning. Figure 7 shows the percentages of teachers who reported learning "significant amounts" about various topics central to the program.

The teachers in 2013 report a decrease in what they have learned while teaching the Generation Earth curriculum. Typically, 50 to 60 percent state that they have "learned some important information." This is more impressive when you consider the majority are science teachers -- which indicates that Generation Earth is keeping up with current events in environmental science. Many responding teachers have participated in Generation Earth in multiple years; we would expect the amount they learn from year to year would decline due to accumulated mastery.

Figure 7: In which areas did you as a teacher learn significant amounts this year?	2008	2009	2010	2011	2012	2013
Recycling	69.2 %	60.6%	60.0%	52.6%	66.1%	48.0%
Re-using resources	41.7%	62.5%	45.0%	52.6%	59.0%	36.4%
Reducing resource use	38.5%	70.0%	41.0%	47.4%	65.5%	31.8%
Urban watershed dynamics	45.5%	62.1%	50.0%	64.7%	64.4%	61.9%
Green principles	42.6%	65.6%	47.0%	47.1%	62.3%	52.2%
Action regarding school environment	50.00%	59.40%	62.20%	58.00%	78.90%	56.50%
Action re: community	30.80%	60.00%	64.70%	66.70%	63.60%	45.50%
Effective urban landscaping	30.0%	34.5%	38.2%	58.8%	47.1%	28.0%

For 2013, about half of the teachers report learning significant amounts across the main topics of the curriculum. The percentage of teachers reporting significant learning is a decrease or about the same as what teachers reported for 2011 and before. Between 36 and 48 percent of teachers reported significant learning about reusing and reducing use of resources.

We conclude that teachers continue to learn as part of their work with Generation Earth Service Learning. Long-serving program teachers probably experience learning in the program's curriculum organization and teaching strategies. Novice teachers probably experience more learning in content areas, such as those shown in Figure 7.

Nonetheless, when a high percentage of a program's teachers report significant learning across a curriculum in a given year, this development should be considered a distinct success.

Teacher Assessments of the Generation Earth Service Learning Website

An evolving element of the Generation Earth Service Learning program is its program website. Our evaluation team conducted focus groups during the development of website designs in 2007. The website came online in 2008, and has become a useful, but not pervasive component of the program's website. The teacher website-use statistics are shown in Figure 8. Access by teachers increased through 2009, while 2010 and 2011 show a small decline, and website use increased in 2012. The 2013 results show a reversal in this trend with a decrease in teacher use.

Figure 8: Characterize your own use of the Generation Earth website.	2008	2009	2010	2011	2012	2013
I've never seen it	15.4 %	8.1%	6.8%	25.0%	5.8%	28.6%
I've accessed the website once	23.1%	16.2%	27.3%	20.0%	24.6%	10.7%
Accessed 2-3 times	38.5%	35.1%	38.6%	35.0%	34.8%	32.1%
Accessed 4 or more times	23.1%	40.5%	27.3%	20.0%	34.8%	28.6%

Teachers using the website reported it to be important. About 33 percent of all teachers consider the website definitely important and about 63 percent of teachers consider the website somewhat important or definitely important. This is consistent with previous years.

Figure 9: Describe the importance of the Generation Earth website to you.	2008	2009	2010	2011	2012	2013
Definitely important	30.8 %	48.6%	41.9%	26.3%	38.8%	33.3%
Somewhat important	30.8%	31.8%	27.9%	26.3%	37.3%	29.2%
Not very important	15.4%	2.9%	9.3%	21.1%	10.4%	16.7%
Not at all important	7.7%	0.0%	0.0%	5.3%	3.0%	0.0%
Don't know	15.4%	17.1%	20.9%	29.4%	10.4%	20.8%

The most common point is that the website makes available basic information about the program, events, and about projects going on at other sites. Some of the teacher's comments on why they have not used the website are the following:

- *This is an area where I have not encouraged my students. I feel I have let GE down; I know they put effort into a good website.*
- *We should be able to view the students' projects via a special 'box' in the site.*
- *This is not the fault of the website. I just haven't had the time to access it. But it looks cool and now that it is on my radar screen, I'll try to remember to share it with my students.*
- *I haven't used the website in a while and mostly accessed it to download the water audit. I'm not sure I can give useful feedback here.*
- *Truthfully, I implemented the program before the website was really up and going, so I haven't needed to spend much time on the website.*

But some of the teachers comments who have used the website are below:

- *I have benefited from the Generation Earth website by having access to valuable data in regards to water conservation as well as having the ability to download the Gen Earth Curriculum.*
- *I have checked out postings of projects that other schools are doing or have done.*

Teachers continue to consider the website more important to themselves than to their students, although many are not sure of its value to students as seen in Figure 10. Perhaps the website is in fact more important to teachers than students for the operation of the Generation Earth Program.

Figure 10: Describe the importance of the Generation Earth website to your students.	2008	2009	2010	2011	2012	2013
Definitely important	15.4 %	18.8%	19.5%	11.8%	17.7%	18.2%
Somewhat important	7.7%	12.5%	14.6%	29.4%	16.1%	18.2%
Not very important	0.0%	15.6%	7.3%	11.8%	11.3%	9.1%
Not at all important	53.8%	6.3%	12.2%	17.6%	9.7%	13.6%
Don't know	23.1%	46.9%	46.9%	29.4%	45.2%	40.9%

One teacher commented on how the website was used for research purposes:

- *I had my students use Generation Earth as one of their resources when researching community resources and organizations that work toward improving the environment.*

Other teachers offer these suggestions for areas to be included in the website:

- *Many of our students are looking for volunteer opportunities. A searchable database of volunteer opportunities connected with the environment would be very helpful for them.*
- *Have interactivity with environmental issues.*
- *Maybe there should be a link to it on some of the social media sites.*
- *Have more how-to guides (how to build a rain barrel, how to make a rain garden, how to build a composter, etc).*
- *Each school could create a Generation Earth Facebook Page with links to the GE website.*
- *Students have access to the aforementioned information. Monthly Webinars would be a great way for students to work with Gen Earth experts or to collaborate and share projects with other schools. Forums and Blogs that are student centered would be another suggestion that would enhance the website. Video tutorials on rain garden implementation, water capturing and all the other sustainable practices might be another implementation to the website.*

Teacher Suggestions for the Program

When asked on the survey if the teachers believed that Generation Earth was in need of moderate or significant developments, 72 percent stated that no significant developments were needed and 24 percent thought that moderate developments were needed.

Figure 11 below lists teachers' general suggestions for improvements and developments in the Generation Earth Service Learning program. None point to material shortcomings in the program. Suggestions range from keeping the curriculum timely and updated, more interaction with other programs and for the Generation Earth Staff to have more direct contact with the students.

Figure 11 Teacher recommendations for improving the program

Question 47	Please describe any needed developments related to the previous question.
Category	Response
Curriculum Expansion	<p>I feel that climate change needs to be a focus.</p> <p>Knowledge and opportunity can always be improved upon to help us achieve environmental awareness.</p>
Expand the Program	<p>Many of our students are looking for volunteer opportunities. A searchable database of volunteer opportunities connected with the environment would be very helpful for them.</p> <p>More how-to guides (how to build a rain barrel, how to make a rain garden, how to build a composter, etc.).</p> <p>Each school could create a Generation Earth Facebook Page with links to the GE website.</p> <p>Monthly Webinars would be a great way for students to work with Gen Earth experts or to collaborate and share projects with other schools.</p> <p>Forums and Blogs that are student centered would be another suggestion that would enhance the website. Video tutorials on rain garden implementation, water capturing and all the other sustainable practices might be another implementation to the website.</p>
Support	<p>If the GE staff continues to do the great job they have done for years, teachers and their students will be able to achieve great success in service learning and helping our environment.</p>
Events	<p>More contact with and between teachers.</p> <p>Increased funding to provide more workshops throughout the year, as well as funding to provide more buses (instead of just a bus for 54 individuals, perhaps enough buses to transport as many classes as possible to a service learning project site).</p>

Teachers also had opportunities to comment on the survey about ways the program staff could help them with their ongoing implementation of the program. These comments are shown in Figure 12. Several responses ask for continued support in areas already covered in the curriculum such as native gardens, recycling, and composting. Others would like to see the curriculum expand to include more Marine Biology, grant writing, and incorporating math into the curriculum.

The program is designed to link with multiple areas of the curriculum but is predominantly used in science classrooms and linked to ideas in biology, chemistry, and natural science.

Figure 12 How can the program assist continued implementation?

Question 35	If you are considering or may consider continued implementation of Generation Earth's curriculum, in what other areas could Generation Earth assist you?
Category	Response
Additional Resources	By assisting us in setting up a Service Requirement for those students in the Environmental Science Academy. I would like support starting a project with my students and continued contact to keep me on track.
Program and Planning	Urban agriculture and school garden support. More planning sit-downs. Gardening and Planting, such as Community Gardens; Draught-tolerant and California native plants and effective irrigation systems. Green technology implementation such as solar and wind power. Also workshops for students on how to pursue jobs / careers in the Green Technology field.
No Changes	I look forward to the same great support I have experienced over the last decade! If at all possible, I would like to have the tree planting we did this year be continued in the years to come. GE helps provide fresh ideas to keep my students and me in action.

Teacher plans to continue implementing Generation Earth Service Learning

When asked if the Generation Earth program should continue at your school in future years, 100 percent of the teachers responding answered “yes.” This is consistent with responses in past years. A strong group of teachers have come to rely on the partnership with Generation Earth for implementing environmental programs in their schools. Many of the teachers elaborated on their reasons to continue to implement the program. Several are cited below:

- *The areas reviewed in this survey are a result of GE's impact on my life and students. The fact that we have been encouraged for over a decade is evidence of the commitment of the GE Staff. I believe my student's success is a direct result of the support I have received as a teacher from GE!*
- *As the school will be continuing to offer more electives involving Environmental Science, we need to continue working with Generation Earth.*
- *Now that the school is an environmental science magnet, I think it is imperative that students get the benefit of Generation Earth resources.*
- *Just knowing that GE as a resource is available to me gives me peace of mind when it comes to having my students do a service learning project that is only required my me at my school. I don't feel all alone when I run up against obstacles. GE is a phone call or email away.*
- *GE has been a very inspiring way in which to have students lead their own projects and help our school and community.*
- *The students were so inspired by the other schools at the service learning celebration.*

Student Focus Group Findings

We conducted four focus groups for high school students from Santa Fe, Hawthorne, Norwalk, and Franklin high schools, and two groups of middle school students from Rosemont and Franklin Classical. Four of the six groups were school clubs and two were classes. We met with forty-five high school students and eighteen middle school students. Time with each group varied from less than 30 minutes to about 50 minutes.

The guiding questions for the student focus group are in Appendix A

Perhaps the most important question: Long term impact on students?

When answering the question, “Did the GE program have a long-term impact on your concern for and actions on behalf of the environment?” Sixty-two of the sixty-three focus group students indicated the program had an impact. Students were also asked if their being in the program had an impact at home. Most reported educating family members and changing behaviors at home.

The impact seems to fall into three categories: identifying problems; learning how to reduce or fix the problem; and motivation to act or change behavior. Students cite learning more about environmental issues such as the impact of trash, water pollution, and wasteful use of our resources. They learned what they could do such as turning off the water or lights when not in use and the importance of recycling along

with what items can be recycled. Students also reported their activities and how the program encouraged them to change their behavior towards the environment.

Students seem to respond to the “cause and effect “of saving water, electricity, or recycling. Once they began turning out the lights or replacing showerheads, they (and their families) saw results in lower utility bills. One student commented on using the money from recycling to buy toys for her brother.

Student comments on how the program educated and changed their behaviors at school and home: (partial list)

- *“Increased our understanding of the environment and how well the waste process actually works. And how by recycling we can actually protect the environment rather than continuing our wasteful society.”*
- *“Besides the recycling we also learned a lot of different ways to apply energy saving and water saving in our homes especially with the workbook that Mr. Flint has had us do.”*
- *“I feel like I sound like a mom because I am always telling my brothers- hey, turn off the lights, take out those chargers”*
- *“Ever since I have become aware of how much harm humans make on the planet, I am more self conscious of what I do so I take shorter showers, I make sure that the air conditioning isn’t on unless we need it. I also try to walk more, bike more to places instead of asking my mom for a ride. I am just trying to do little stuff so that I am more conscious”*
- *“I make my family recycle all the time even if they are not sure. I have them check. It has actually helped since you can sell the plastic bottles. We bought the Lego Millennium Falcon because of that and helped the environment....Mostly because my brother likes getting money.”*
- *“Since joining the earth club I talked to my mom about it. And about some of the things we could do. Since we got the showerheads and the toilets that use less water the water bill has gone down. The electricity bill as well because whenever we see lights that don’t need to be on we turn it off. “*
- *“I think that since I have been involved with GE, not just the Green Team since I went to a workshop in 2011 - Megan went too -, it has really impacted me in the sense that I have become more conscientious of my actions, and I have learned a lot of new things like using the water audit and how important it is that we take care of our earth because it all ends up somewhere, all our litter ends up somewhere. Not only helping the environment, it has also helped me as a person. It makes me think about things before I do things. Not just littering. It’s also like saying something or acting a certain way and it has really opened up a lot of doors for all of us. We are able to participate in a lot of activities like the recycling bins we have outside.”*

- *“I would say definitely. Before I entered high school we were pretty wasteful. Generation Earth showed me how one family can create a lot of waste. Small changes can make a big difference. It is everybody’s responsibility. Generation Earth made me want to make the change and to help me influence my parents...”*
- *“Ever since I began, I have been really strict with the electricity in the house. I am always running to turn off all the lights and everything. I tell everybody to turn off the lights if you don’t need it. And I see the electricity bill every time it comes and can see it improving.” (From a 6th grader)*
- *“Before I joined eco club, I didn’t really recycle that much or save energy and water. But now that I joined I do more for the environment. “*

In response to the question, **“How have others’ behaviors and attitudes changed as a result of the program?”** students commented on how they have reached out to others to also educate them: (partial list)

- *“When my sister is coming out of the bathroom, she leaves the light on. And I tell her to go back and turn off the light. And my big sister leaves the faucet on, so I go back in and squeeze it really tight so that none of the water is dripping out.”*
- *“Sometimes when I see people throw paper in the trash can, I tell them that they have to put it in the recycle bin.”*
- *“Sometimes when my brother and I wash the dishes, he usually rinses...And he leaves the water on until I finish washing the dish. So I told him about that and now every time he gets a dish he rinses it and turns the water off.”*

Four of the six student groups interviewed were student clubs that met during lunch or after school. We recall discussions and survey responses in prior years indicating that Generation Earth teachers play an important role in starting and maintaining these clubs. When students were asked what were some of the obstacles in participating in the clubs they cited homework and conflicts with sports or doctor’s appointments - routine conflicts that you would expect in a student’s life.

How could Generation Earth have been more impactful where you are concerned?

Students were also asked about how could the program be expanded and what, if anything was needed to grow the program at their school. (**“How could the Generation Earth Program have had more of an impact on you and students at your school?”**)

What stood out in their answers was more public awareness about the program, more field trips, more events at their school, and events with other schools. Several students attended the program that Disney sponsored for Generation Earth and this was well received by those who were able to attend.

Student comments: (partial list)

- *“Fund recycling bins to have in the school - water bottles are put in the trash can. They had to go through the regular bins last year.”*
- *“Do we need education to help start such a program? YES!”*
- *“Kids could spend an hour telling others where the waste goes and where they should put it – maybe at an assembly.”*
- *“School communicates with text and emails and morning announcements. Have more announcements about the program.”*
- *“Get more events and more widespread distribution there. Maybe help plant a tree or donate to do so.”*
- *“Maybe have more smaller events.”*

Students were asked if they were a Generation Earth Program leader, **how would they go about trying to reach more young people in Los Angeles County?** Many of the suggestions included using the Internet or social media, which also came up in a later question. The time seems right for Generation Earth to move into this area. Students are often involved in making videos in a school setting and a competition or “Video Festival” would seem a logical outcome.

Student comments: (partial list)

- *“I would try to find a way to have more ads. More flyers.”*
- *“Everybody is on their phones so text messages and ads on games so people will always see them. Even on the Internet. Young kids go on websites. You could have an ad there.”*
- *“Do a TV commercials and try to get a cheap contract. Put flyers in everybody’s lockers.”*
- *“Maybe in super markets advertise better ways to recycle. Like on the back of the bottles it says recycle. They could try to appeal to a wider audience and inform all classes, and not just the environmental classes.”*
- *“Envirothon was first a club and then we transformed it into a class. If there were a Generation Earth class, then we would focus more on environmental problems. There would be more students.”*
- *“I could go into classrooms and talk about it and talk to schools. Sometimes we have assemblies about different things and I could tell them about the dangers.”*
- *“Show the students that at the rate we are polluting the earth, how the earth would look 50 or 70 years from now.”*
- *“Make a video and post it on YouTube since so many people are on YouTube right now.”*

How do students get involved in Generation Earth?

When asked about **how and why the students got involved in an environmental club or a class**, numerous reasons were given. It seems that there are multiple hooks for students to latch on to. While an underlying reason for most was an interest in the environment, most students report getting involved through or with a friend. Announcements in assemblies were helpful and some schools have club rushes. After going through the student comments, the breakdown of reasons looks like this:

- Friends: 18
- Teachers: 11
- Desire to help the environment: 11
- Announcement (school or club rush): 8
- Enrolled in AP Environmental Science class: 8
- Event/activity (GE workshop, Earth Day Fair at school, field trip, etc.): 5

Other reasons: Earth Day Fair booth, took a workshop at Generation Earth with teacher, Disney program, AP class, club was popular so school created the class, had a class with the teacher who sponsors, field trips, and other events. One student was scheduled into the club because of a schedule change and decided to stay.

Since many students cite that a friend or teacher got them involved, the one-on-one personal invitation has a significant impact on program involvement. The importance of networking with the students to recruit other students, role of the teacher, and to build on students' interests in helping the environment should be acknowledged. Schools looking to build the program should consider more publicity and exposure on events and activities. Some areas that are overlooked and could be utilized more effectively are student/teacher workshops with Generation Earth, field trips, and partnerships with businesses such as Disney. Several students mentioned the event at Disney as a highlight.

Student comments: (partial list)

- *"I first heard about the Earth Club through announcements and my friends are in the club so they brought me here."*
- *"I wanted to be more active in school and am interested in the environment. I heard about it through my friends."*
- *"I would often hear announcements about Earth Club activities last year, and never joined. But I finally did this year because I really got interested in it. I really just want to help the environment like cleaning it up, which is a main motivation."*
- *"I heard it from my cousin and I stay here because I want the planet to go green and recycle more."*
- *"The first day of school one of my teachers announced that she had an Eco Club and so I joined because I wanted to improve everything because it is not green enough."*

Students' responses to the question: "Were there any additional resources GE should have provided during the program?" were varied and thoughtful. Most students thought the programs were well supplied. However, some comments

suggest that students appreciate having what they need to succeed. Since the programs are varied, a wish list or a pre-set budget could be given to the teachers to augment the program. One student mentioned busses for field trips, another more recycling bins, another a scholarship program for students going to study environmental engineering or a related field, and another needed equipment for the greenhouse. Events either at their school, with other schools, or at other organizations came up multiple times as a way to recruit students or why students stay involved.

Student leadership opportunities and actions

Student leadership in the program: The most typical leadership model in the clubs was having a president, vice-president, and treasurer. Students with these positions took on more responsibility and ownership of the club activities. One middle school club was careful to note that they did not have positions and everybody worked together. From what we could see, they were equally effective in running activities but appeared to be more dependent on leadership from the teacher.

Some students took on the well-being and sustainability of the club and actively recruited new members. Others noticed where there was a gap and worked to fill it, for example, helping the teacher with watering the garden or working in the greenhouse.

Academic classes are not as prone to leadership roles since the teacher ultimately grades the students. However, one class was as a result of the club so some of the students were used to taking charge of different projects. The other class was Advanced Placement (AP) Environmental Science but students were also active in an eco club.

From the students' focus groups we learned the importance of clubs on campus. They seem to be the engine that drives campus eco awareness and activities. Clubs and classes benefit from the Generation Earth curriculum, resource material, field trips, and outside speakers. Four of the six student focus groups were eco clubs and most of the students in the two classes also participate in an eco club. For the teacher, taking on the challenge of running a club, either after school or during lunch, is mitigated with the extra support of the Generation Earth staff and networking with other teachers. Students who participate in an eco club are more likely to put on eco fashion shows or work with the electric car and robot clubs.

Student comments on leadership: (partial list)

- *"Last year I think I was pretty committed to the club. I would come to the meetings as much as I could. I didn't really see that many people as involved as I was or my friends were so I thought becoming president I could actually influence others. This year we have events during open house, we have this event where all the clubs try to influence others to join the club so I have been doing that. And I have been trying to get underclassmen to join as well."*
- *"I am the unofficial head of the greenhouse apparently- before it was kind of unorganized. I just started helping out acting as a sort of intermediary between the teacher and us. I started organizing so we finally started getting things growing again. I got a system set up."*

- *“Well, I am the Earth. I wore the big earth globe so everyone revolved around me during Earth Day. I was the one that attracted people to different spots and the different groups. I pledged to take shorter showers and unplug chargers.”*
- *“I am the secretary. I take note of all the stuff we do. We have rain barrels, gardening, and recycling which the lower classmen are in charge of that so they can gain experience. “*
- *“Maybe two months ago I went to Target, the one that is... I can’t remember the street. And we parked next to some railroad tracks and we saw just piles of trash. So I emailed City Hall for a clean up and they got back to me.”*
- *“Our President divided us into groups where each group of 3-4 people take care of a bin according to the class so there is a bin for Freshman, Sophomore, Junior, and Senior. And we have to take care of them and make sure that there isn’t any trash in them and just keep it organized so that the students will know where to recycle the Capri suns.”*
- *“I don’t feel like there is a leader because it is mostly a group effort.”*

Students were also asked if what were the obstacles in taking a leadership role. The most common reason centered on other activities at the school. Sports and homework obligations topped the list.

- *“I’m in basketball, so in-between basketball and homework it is a little too much.”*

Generation Earth influence on student career plans

In looking for lasting influences as a result of participating in a Generation Earth program we asked the students: **Has Generation Earth influenced a possible career decision or future area of study?** As expected, high school students had more to say on this topic than middle school students. High school students are planning applications to college and reviewing potential majors. Several students had their initial choices fortified with participation, some students are refining their thinking and some students are beginning to consider a career in environmental science or a related field. In addition, one student talked about continuing the habits he has formed in recycling to continue in whatever business office he eventually works in. What was refreshing about this thinking is that anyone can continue advocacy and recycling regardless of the career choice. This also illustrates the potential far-reaching impact of Generation Earth.

Student comments: (partial list)

- *“For my major, I put environmental science, but a couple of the colleges didn’t have environmental science specifically. They had different things like environmental studies or they just went into a couple of branches. Now that I have taken AP Government, I think that I really want to be an environmental lawyer, so I might go into policy.”*
- *I am going to biochemistry. Later I am hoping to do an experiment to test the effects of regular fertilizer vs. using fish oils in the soil.”*

- *“I want to be a teacher and I don’t know what type of major I want to go into. Anything in an environmental field is what I want to study.”*
- *“I want to learn biology and anatomy. Biology deals with every form of life. I can help educate people how their bad actions can affect our environment.”*
- *“It didn’t really impact me on my career, but if I go to a collage and get money and then I am able to buy a house, instead of using electricity I can buy solar panels.”*
- *“I want to be a marine biologist. Now since I know that all the trash that pollutes the ocean, I could work on getting the trash out of the ocean to help the animals.”*
- *“Maybe if there is a job that I am in, regardless of what I am doing, I will tell my coworkers to use reusable bottles.”*
- *“If there is an environmental society, then I will join it regardless of what job I have.”*

The Internet and New Media as tools

As we have seen in this and past reports, the Generation Earth website is underused by students. Knowing the interest in social media and the Internet with students, **we posed several questions to the students to determine if other approaches should be incorporated into Generation Earth’s program.** Virtually all students indicated some sort of use of the Internet and social media. One middle school group indicated that their parents urged caution with posting personal information. The remainder of the groups did not see a problem with including Generation Earth events with their postings since they were already on social media. Students tend to use the common sites such as Facebook, YouTube, Instagram, and blogs. One student suggested taking out a Google ad to promote the Generation Earth program. Some students did post pictures of Generation Events such as tree plantings, beach clean ups and the event with Disney after they attended. Students also saw this as a way to network with other students working on similar projects and welcomed the idea of more interactions.

Questions and responses are listed below: (partial list)

Have you ever posted your environmental activities on social media?

- *“When we went to the Generation Earth/Walt Disney program, we posted a lot of pictures on Instagram. And I think people saw us having a lot of fun, since it was pretty evident in the pictures.”*
- *“Yeah, the one about planting trees because in order to go to that fieldtrip we had to enter a contest and get the most votes.”*
- *“Now most young people are using technology and most of them have Facebook and YouTube. It would be a good idea to do that so that they can get their ideas out to younger kids.”*

Question: Are you concerned about privacy issues?

- *“No because if you post it you can make it private and just for your friends. If you post it in public, then it is not really a big issue. I posted a picture today of take care of the earth... and it already got 27 likes.”*
- *“Parents don’t want us to exploit our personal information.”*

The final set of questions asked if there was anything else that Generation Earth should be asking or what else they would like to share with the program. Most students were content with what had been covered in the focus group. However, a few students commented on curricular additions such as climate change, government regulations, use of solar panels, status of the ozone layer, and iPhone use. One student wanted to receive emails directly from Generation Earth while another wanted to be able to post on the Generation Earth website.

Teacher Focus Group Findings

Nine middle and high school teachers attended the focus group held at TreePeople on June 2, 2013.

The guiding questions for the teacher focus group are located in Appendix B at the end of this report.

All of the nine teachers reported between four and six years with Generation Earth and at least two have changed schools and taken the program with them. Four teachers learned about the program after starting an Eco Club, three online and one when visiting TreePeople, two received a flyer in the mail, two heard from colleagues and one from an announcement from the Los Angeles County Department of Public Works. This points to the importance of the Generation Earth website as a recruitment tool.

All of the teachers received training at workshops, with several teachers attending multiple workshops over the years. This ability for teachers to continue training helps to sustain the program and allows teachers to renew their commitment to the program. Ongoing training also allows teachers to extend their expertise in environmental issues over time, providing them with more flexibility and greater reaching in Generation Earth instruction.

Generation Earth’s training and support programs

Questions moved to the quality of training and support. Teachers commented on initial support for implementing the program, materials provided, and if there were omissions Generation Earth should be aware of. Teachers found the workshops pivotal in implementing and running the program. The follow-up support universally was instrumental in sustaining the program. Field trips add real-life experiences and help build community with the students. Also important are the teacher-student workshops

that Generation Earth runs. Workshops with students, at TreePeople' Center for Community Forestry, and other locations such as Disney, empower students and build student leadership.

When asked what is missing from the program, teachers want more workshops. They appreciate that workshops are held in different locations around Los Angeles County but would like more at school clusters. One teacher commented on the obstacles with her administration to host such a workshop at her school. Other obstacles seem to reside with district policies. One bus was turned away for a field trip because the bus driver did not have the right certificate. And another principal, after having the field trip request for several weeks, notified the teacher the day before the trip that the site was not on the approved list. Other teachers did not report any of these obstacles. We conclude that with multiple school districts in Los Angeles County, and individual working styles of school administrators that obstacles will vary from school to school and district to district. However, the conversations among the teachers considering problems and solutions were helpful and would point to more informal discussion or brainstorming groups.

Teacher comments: (partial list)

- *"The very first workshop that I went to was just teachers. After that I started to go to the fall workshops with the students. Students got the training and they were the ones that took control of it all. After that meeting in November, they were talking about what they wanted to do. They had meetings everyday at lunch. That year, they had a big meeting at Disney."*
- *"I don't remember the first time I went to the workshop but it was very helpful. They had a lot of resources especially for the garden because that is my goal to have at my school. When you are teaching, you are so focused on other things. When they give you a binder, everything is there. It is very useful to have those tools. It is very nice how they organize. I was going to ask. I didn't have that problem. I didn't say anything because there wasn't an issue with my principal."*
- *"I love that they also have a link to the standards."*
- *"I like that the workshops are in different locations every year. I also like the access to the lesson plans online. We are constantly being updated through email."*
- *"In addition to the workshop and training, they let you know that there is somebody that can come to your school. One time I asked somebody to come speak to the class. Students become more attentive when somebody outside is there."*

School decisions to implement Generation Earth

Of particular interest was the chain of decision-making at the teachers' schools for implementing new programs. What are the obstacles and what kinds of adjustments need to be made with charter schools? The educational landscape is changing and what are teachers doing to teach the Generation Earth curriculum?

Again, we found that schools and districts vary. But what surprised us was the initiative and fortitude of some of the teachers to “make things happen.” In one case, a teacher met her students at a destination with the parents when a field trip bus could not be arranged. Another teacher used a taxi to get her students to the Disney event. Another teacher is working to have the Los Angeles River on their school districts approved list for field trips. Another teacher took her students to City Hall and got recognition for their work. Other teachers also cite that having parent and public support of the program aids them arranging field trips or events. Teachers with the support of the school’s administration sometimes find the obstacles at the district office. This can be mitigated with strong principal support. And often it is not an unwillingness of the district, but confusion of who has the authority to grant permission for a field trip or event. The cost of hiring substitute teachers was also brought up, but does not seem to be a major factor in many schools, but is a concern.

Teacher comments (partial list)

- *“My principal is really supportive, but he is new. The first principal was not supportive. When he takes it to the district office to get it approved, there is always a problem. I started two months before the forest trip and we ended up not being able to go.”*
- *“Another teacher asks: How do you get your students there?”*
- *“Sometimes we ask the parents to take them there.”*
- *“I definitely have the support of the administration for the garden. I had to sign off on what kind of plants, dirt, how far to dig down. I was able to say yes to everything. But to have that as an obstacle it is very difficult. There is a long list of approved plants to plant, but that is from the 1960s.”*
- *“In my district, we have had support. They are always included in emails and what not. I have a special schedule for my school. My kids have orange shirts when they are doing trash pickup. I started becoming more public because I want everybody to know about us.”*
- *“Our biggest obstacle is the district. I have taken things to be approved and it gets approved 3-4 months later. My administration on-site has been really supported. It is not supported at the next level up.”*
- *“About backing. I am the queen of publicity and when you have the muscle behind you, it is difficult for people to turn you down.”*
- *“We have had some problems with the bus as well but my district is behind me. We really don’t have any issues. Since our school is built on a hill we wanted to put in a waterfall. The school wanted to know if you die, who takes care of that.”*
- *“I don’t have obstacles as far as the principal goes. But she doesn’t want to create problems. When she found out that another school had a garden, she wanted one too...Parent involvement is really great at our school.”*

How does this program relate to the new Common Core movement?

When asked about the effectiveness of the Generation Earth curriculum and the shift to the **Common Core** (a new set of federally-pushed learning standards for the nation's schools) some teachers have a "wait and see" approach since the program is just being rolled out. But many teachers have received training from their schools and districts in the Common Core. One of the CC's tenets is an increase in critical thinking. The project-based learning of Generation Earth should align well with "digging deeper" into a subject, with more writing and critical analysis. However, teachers would like to see updates in the curriculum and workshops reflecting the Common Core.

- *"From what it sounds like, there should be less testing and more writing with Common Core. I think that more journal writing will help students become comfortable in talking about science."*
- *"I had to go through a lot of the training for Common Core. What I am getting is that there is a lot of critical thinking. It is getting the kids to think and helping them generate conversations."*
- *"They had just finished training everybody on Common Core, so if you can get all of their principles into the workshops, it would be very helpful."*

Impacts on students

When asked about the impact of the program on themselves and their students, teachers universally agreed that their students went beyond environmental awareness and became active stewards of the environment. All but one teacher agreed that they participated in more environmental activities as a result of Generation Earth. The one teacher explained that she has always been active since her college days. The activities students are involved in range from recycling, tree planting, contacting local government and business leaders, community cleanups, and conservation.

Teacher comments: (partial list)

- *"I think that it definitely enriched their lives. I hear it from them all the time. I showed them the movie Dirt. It made the point that a 19 year old can make a difference."*
- *"It was life changing. If you look at what I was doing before Generation Earth and when the Eco Club came about."*
- *"There are numerous tree plantings on campus. The older kids were kicking it down to the younger kids. They really took ownership of it and wanted to help."*
- *"The interesting thing about my kids is that my kids' parents are rocket scientists. These are the kids that get an A+ on everything and they all crush the bottles. Even those children learned so many little things. They tell their parents that they have to recycle."*

- *“We did a paper audit at our school and found out that many teachers didn’t even know about paper recycling. Kids get more into it when they learn about it.”*
- *“I am seeing that the leadership type roles are also what they want to do later in life. I took the kids to our City Council. The City Council was so inspired by the 6th graders. They (the kids) felt empowered. The city put it up on their website. One of the gardens that we did in the water audit was all Generation Earth. A student said that he could make a career of this. It all came together for him.”*
- *“It just goes back to changing habits. As a result of Generation Earth, I have now reached out to the community. And Burbank reached out to me.”*

How might Generation Earth be expanded?

The final area of teacher focus group questions asked for ideas on how to expand the Generation Earth program either in their school or to other schools. Breaking the isolation of being that one teacher that recycles on campus is an important step. Teachers talked about the importance of working with colleagues, administrators and the community. Increasing publicity about Generation Earth, enrolling administrators in the workshops, and partnering with like-minded local companies could help grow the program. Teachers also told each other about funding opportunities such as Project Give.

Teacher comments: (partial list)

- *“Maybe local corporations could be invested in it. Like Jet Propulsion Laboratory (JPL).”*
- *“I don’t think all schools have Generation Earth. The administrators should have workshops. Some teachers, such as history teachers, are not aware of these programs.”*
- *“I guess that even getting the administrators involved would help us getting involved. We waste so much paper. If they make it a mandate to turn off the lights and stop wasting energy, sometimes the teachers forget to close the door and waste energy. Getting the others involved will save money.”*

Conclusions

The student and teacher focus groups impressed the researchers with their commitment to Generation Earth and environmental activities, their informed responses showing a depth of knowledge and their ability to change their behavior and become advocates once they studied environmental issues. Adding focus groups allowed us to delve into the thoughts of the teachers and students involved in Generation Earth. What we didn't do was the annual measurement of student learning through the pre and post surveys. However, we ended the focus groups with a better grasp of who is being served with Generation Earth and the profound influences the program has on them.

- The online teacher survey continues to highlight the successes of Generation Earth through the workshops to train and the one-on-one support teachers receive throughout the year.
- The curriculum continues to be relevant and informative as teachers, most of them science teachers, state that they learn new material year after year.
- The curriculum appears to be well suited to California's shift to Common Core standards, which highlights analytical thinking, and student-to-student dialogue.
- The program appears to be self-sufficient on the strength of the materials offered through Generation Earth curriculum. In addition, the curriculum allows for flexibility for teachers to tailor it to their needs from teaching middle to high school classes (including Advanced Placement) and to classroom settings to school clubs.
- Student clubs serve as the engine that drives environmental programs on campus. And several clubs have inspired schools to offer classes in environmental science.
- Student leadership can take many forms from more traditional roles such as presidents of clubs, to students taking charge and filling in when needed for events, or recruiting more members.
- Working with Generation Earth reduces the isolation of teachers building recycling programs or planting gardens on campus. The support of the Generation Earth staff helps to sustain the programs over multiple years. And the networking through Generation Earth with like-minded teachers at other schools supports their efforts and program.

Recommendations

The following are our recommendations for the Generation Earth Service Learning as the program moves into the future.

- While programs are self-sufficient and the curriculum guide supplies materials for launching and running a successful program, there were requests from the students for materials they felt would enhance the program. These included more recycling bins, garden supplies, and more field trips. It is clear that with the variety and flexibility to build unique programs, the programs should consider offering participants a chance to apply for resources they feel would enhance their instruction.
- Generation Earth should consider offering more workshops at school sites for teachers and more workshops that include students. Workshops should also include school leadership with principals and district staff.
- Students are already using social media. Generation Earth should create avenues and expectations for students to report and share their actions and interests.
- Ads on the Internet promoting Generation Earth and supporting student involvement should be considered.
- Students expect to see links between areas that interest them with social media. Links to the Generation Earth website could help enhance student use of the website.
- The Generation Earth Service Learning program, though a host of indications that emerge year after year, meets important goals for students and teachers. These goals are not systematically or comprehensively pursued in routine areas of the middle and high school curricula.
- The program is in wide implementation and can benefit additional teachers each year. Generation Earth Service Learning should continue to serve Los Angeles County schools.

References and Resources

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Appendix A

STUDENT FOCUS GROUPS

We discussed having the students take a short online survey before coming to the focus group that would let us know how many years the student had GE at their school, length of program that year (Ex. field trip to year long recycling program). The first set of questions were used in the online student survey.

Student Preliminary Online Survey questions:

- First name and last initial.
- Current grade____
- How many GE units have you studied in different classes or environmental clubs? (e.g. 7th grade natural science, 9th grade biology): 1____, 2____, 3____
- Have you participated in any of these:
 - School wide water audit ____
 - School wide trash audit____
 - School wide cleanup ____
 - Help establish school wide recycling program ____
 - Others?
- Did you take any sort of leadership roles in a GE Program? Write an example in this box _____.
- Did the GE Program have a long-term impact on your concern for and actions on behalf of the environment? Please give an example:
- How could the GE Program have had more impact on you? And on students at your school more generally?

Student Focus Group questions (First set of questions will be repeated from the online survey.)

See above.

As the program began and was implemented:

- How was the GE program introduced to you? How did you feel about it?

During the program:

- What was your role as a student during the GE program? Did that change over the course of the class?
- Were students encouraged to take leadership roles? What are some examples?

- Did you take a leadership role in the program? If so, what did you do? If not, how do you think you or other students could be more active in the program?

After the program:

- How has your understanding of environmental issues changed as a result of the program?
- As a result of the GE program are you more caring for the environment? In what way(s)?
- Did GE change any of your environmental habits at home? Give examples of changes.
- Did it impact your family's or household's environmental habits? Give examples.
- How have other behaviors and attitudes changed as a result of the program?
- Has GE influenced a possible career decision or future area of study?

Future of the program

- If you were a GE Program leader, how would you go about trying to reach more young people in Los Angeles County?
- Would you or GE under your guidance enlist social media to reach out? How?
- Have you ever posted your environmental activities on social media?
- Are there any areas of interest not covered in the GE Program that you think should be covered?
- Is there something else GE should know about your experiences or that GE should be asking students to be best informed about their program?

End of student focus questions.

Appendix B

TEACHER FOCUS GROUP

GE Training and Support

Underlined questions were considered more important if time constraints did not allow for all of the questions to be included.

- How did you hear about GE?
- How many years have you been involved with the program?
- Did GE support you effectively in implementing this program? Did the initial and ongoing workshops contain the information and materials you needed to implement your program? Should these workshops be done differently in any way, why? What additional information can you provide?
- Were there any additional resources GE should have provided during the program?

After completing a program:

- How did GE impact the life of your students? Your life?
- Do you think GE influenced course of study or career decisions for your students? What are some examples?
- Did GE change any of your environmental habits at home? How?
- Has GE impacted your concern and care for the environment?
- Do you think that your students care more for the environment after participating in the program? Can you cite evidence of this?
- How could you grow the program at your school (or at other schools) and thus involve more teachers, students and administrators? What role can GE play in this?
- Have you been recognized for professional growth by your school or district? Was this related to Generation Earth? How?

Curriculum:

- Does the GE curriculum meet state and district standards? Does your department chair and/or Principal pay attention to this?
- How do EEI (Education Environment Initiative) and the Common Core and GE dovetail? Mutually supportive? Are there tensions?

- What, if any, resources or materials should GE supply to comply with the state standards, Common Core, or the next generation science standards?
- Did you use EEI units or other resources outside the GE curriculum to implement the program?
- What areas can you see environmental principles being imbedded across the curriculum in other academic areas such as history, math, English, foreign language?

Implementing the GE program:

- What is the chain of decision-making at your school for introducing new programs? (Are teachers, department heads, or principals involved?)
- What are the obstacles to implementing the program in your school?
- Has your school been reorganized recently? If so, how was it reorganized?
- What was the impact of your participating in the GE program as a result of the reorganization?
- GE provides a bus but does your school also require that a substitute teacher be covered for a field trip? This should be on the online teacher survey – perhaps we should just get it on for any teachers yet to reply. Or we can sample the issue here briefly.

Student leadership in GE

- Do students want to be involved in the program? What percentage of students participated in the program?
- How much authority do you give to the students for running the program? Is this something that can grow over time so more students are in leadership positions in the class? Do you think this is important?

End of Teacher Focus Group Questions

Appendix C

An online survey was created using three key questions from the student focus groups. We were interested in giving each student a chance to respond more completely. Four schools representing 29 middle school and ten high school students responded.

Results of student online survey:

Students completed the following Generation Earth activities:

- Campus clean up: 34
- School wide recycling: 29
- Community/beach clean up: 28
- Conducted Trash Audit: 20
- Conducted Water Audit: 10
- Other: 15

Other activities consisted of planting a garden, planting trees, and an eco-friendly fashion show.

Students explained the long-term impact of the Generation Earth program and on ways the program could have a greater impact. Many of the responses mirror those captured during the focus groups but in greater detail. We have included a sample of these comments:

Did the Generation Earth Program have a long-term impact on your concern for and actions on behalf of the environment? Give an example:

- *Yes! The GE program has inspired me to take action in various ways. From recycling to composting and holding environmental-based events that inform the community about the importance of contributing greatly towards making this earth cleaner and more eco-friendly. Together we can make it happen!*
- *Yes, everything I have learned will stay with me forever, such as learning the benefits of composting and recycling to preserve nutrients in soil and conserve energy in the growing future.*
- *The GE Program did have a long-term impact in the form that now I care much more for my environment and realize that it is my responsibility to care for it. I now make efforts to recycle, conserve water, and inform others to do the same.*

- *The Generation Earth Program absolutely had an impact in my concern for the environment. Previously, I was oblivious to all the pressing issues that surrounded LA yet now I am aware of the issues which impulse me to make a change in the environment for years to come.*
- *Yes. Since a GE workshop I attended in 2011, I have been inspired to pursue leadership positions in environmental activities on campus. We began the Eco-friendly CCC group last year and won competitions.*
- *Yes. I have learned that pollution can hurt the environment. I didn't care back then but now at home, I use less electricity and my electricity shows that I have improved the differences. I also like to go to the beach on my bike with my mom and along the way, we are picking up bottles to recycle. We have followed the 3 r's in my home and in my community. My parents are proud and how much we wasted on electricity that we used to pay \$15 and up and now we spend \$9 or less, all because of me. This has impacted me because I would be running all over the house turning off every single light that nobody is using. My mom had an idea of making recycled bows out of the bags used to cover garlic and onions. With the money we will donate to my school. This is how the GE PROGRAM has impacted me.*

How could the Generation Earth Program have had more impact on you? And on students at your school more generally?

- *The GE program could perhaps fund more programs at school to help boost participation of students at eco-friendly events and impact even more lives to realize the importance of living in a sustainable manner.*
- *The GE program could advertise more their new projects and findings in order to create the students in my school more conscious.*
- *More involvement and representatives coming to our campus, more overall events that students from around SoCal can attend.*
- *They would do campus clean up, go on field trips and learn about the environment, go to the beach and have a clean up, also go do mile walks for hospitals, possibly many more.*
- *I would have liked to make some eco-club experiments.*